# I-Chao Shen

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https://jdily.github.io

## Research Interests

Computer graphics, vector graphics, data-driven 2D/3D geometry analysis and processing, machine learning.

## Education

**National Taiwan University** — **Taipei, Taiwan**
*Ph.D.* in Computer Science — *Sep 2017 - Dec. 2020*
Advisor: Bing-Yu Chen.
Thesis: 2D Visual Content Design Driven by Human-Guided Optimization

**National Taiwan University** — **Taipei, Taiwan**
*Master in Information Management and MBA* — *Sep 2009 - June 2011*
Advisor: Bing-Yu Chen.
Thesis: Perspective-aware Warping for Seamless Stereoscopic Image Cloning

**National Taiwan University** — **Taipei, Taiwan**
*Bachelor in Information Management* — *Sep 2005 - June 2009*

## Experiences

**Project Assistant Professor**, Tokyo, Japan — *Sep. 2022 -*
Dept. of Creative Informatics, The University of Tokyo

**Postdoctoral researcher - JSPS Foreign Researchers Fellowship**, Tokyo, Japan — *Dec. 2020 - Aug. 2022*
Host : Takeo Igarashi

**Research Visitor - JST CREST Project**, Tokyo, Japan — *Feb 2018 - July 2018, Aug 2019*
Supervisor : Takeo Igarashi

**Research Assistant - CMLab, National Taiwan University**, Taipei, Taiwan — *Apr 2017 - July 2017*
Supervisor : Bing-Yu Chen

**Research Assistant - Imager Lab, The University of British Columbia**,
Vancouver, Canada — *Sep 2014 - Mar 2017*
Supervisor : Alla Sheffer

**Research Intern - Imagination Lab, Adobe Research**, San Jose, CA — *May 2015 - Aug 2015*
Supervisor : Nathan Carr, Duygu Ceylan, Zhaowen Wang

**Research Assistant - CITI, Academia Sinica**, Taipei, Taiwan — *Sep 2011 - July 2014*
Supervisor : Wen-Huang Cheng

## Publications

**360MVSNet: Deep Multi-view Stereo Network with 360∘ Images for Indoor Scene Reconstruction**
Ching-Ya Chiu, Yu-Ting Wu, I-Chao Shen, Yung-Yu Chuang
to appear in IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2023

**ODEN: Live Programming for Neural Network Architecture Editing**
Chunqi Zhao, I-Chao Shen, Tsukasa Fukusato, Jun Kato, Takeo Igarashi
in proceeding of ACM Intelligent User Interfaces (IUI) 2022

**Per Garment Capture and Synthesis for Real-time Virtual Try-on**
Toby Chong, I-Chao Shen, Nobuyuki Umetani, Takeo Igarashi
in proceeding of User Interface Software and Technology (UIST) 2021

**Data-driven Sketch Beautification with Neural Feature Representation**
I-Chao Shen
IEEE Computer Graphics and Applications (CG&A) 2021

**ClipGen: A Deep Generative Model for Clipart Vectorization and Synthesis**
I-Chao Shen, Bing-Yu Chen
IEEE Transactions on Visualization and Computer Graphics (TVCG) 2021

**Multi-Resolution Shared Representative Filtering for Real-Time Depth Completion**
Yu-Ting Wu, Tzu-Mao Li, I-Chao Shen, Hong-Shiang Lin, Yung-Yu Chuang
High-Performance Graphics (HPG) 2021

**ClipFlip : Multi-view Clipart Design**
I-Chao Shen, Kuan-Hung Liu, Li-Wen Su, Yu-Ting Wu, and Bing-Yu Chen
Computer Graphics Forum, Volume 40, Issue 1, Feb 2021, arXiv:2008.12933 [cs.GR]

**Interactive Optimization of Generative Image Modeling using Sequential Subspace Search and Content-based Guidance**
Toby Chong Long Hin*, I-Chao Shen*, Issei Sato, and Takeo Igarashi (*: joint first authors)
Computer Graphics Forum, Volume 40, Issue 1, Feb 2021, arXiv:1906.09840 [cs.GR]

**ZomeFab: Cost-effective Hybrid Fabrication with Zometools**
I-Chao Shen, Ming-Shiuan Chen, Chun-Kai Huang, and Bing-Yu Chen
Computer Graphics Forum, Volume 39, Issue 1, Feb 2020

**Director-360: Introducing Camera Handling to 360 Cameras**
Hao-Juan Huang, I-Chao Shen, and Liwei Chan
in proceeding of MobileHCI 2020

**Perception-Driven Semi-Structured Boundary Vectorization**
Shayan Hoshyari, Edoardo Dominici, Alla Sheffer, Nathan Carr, Duygu Ceylan, Zhaowen Wang, I-Chao Shen
ACM Transactions on Graphics (Proceedings of SIGGRAPH 2018).

**High-resolution 360 Video Foveated Stitching for Real-time VR**
Wei-Tse Lee*, Hsin-I Chen*, Ming-Shiuan Chen, I-Chao Shen and Bing-Yu Chen
Computer Graphics Forum (Proceedings of Pacific Graphics 2017)

**A Scalable Active Framework for Region Annotation in 3D Shape Collections**
Li Yi, Vladimir G. Kim, Duygu Ceylan, I-Chao Shen, Mengyan Yan, Hao Su, Cewu Lu, Qixing Huang, Alla Sheffer, and Leonidas Guibas
ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2016)

**Retargeting 3D Objects and Scenes with a General Framework**
Chun-Kai Huang, Yi-Ling Chen, I-Chao Shen, and Bing-Yu Chen
Computer Graphics Forum (Proceedings of Pacific Graphics 2016)

**Data-driven Handwriting Synthesis in a Conjoined Manner**
Hsin-Yi Chen, Tse-Ju Lin, I-Chao Shen, and Bing-Yu Chen
Computer Graphics Forum (Proceedings of Pacific Graphics 2015)

**Gestalt Rule Feature Points**
I-Chao Shen and Wen-Huang Cheng
IEEE Transactions on Multimedia (TMM), 17(4), pp. 526-537, 2015

**Geometrically Consistent Stereoscopic Image Editing using Patch-based Synthesis**
Sheng-Jie Luo, Ying-Tse Sun, I-Chao Shen, Bing-Yu Chen, and Yung-Yu Chuang
IEEE Transactions on Visualization and Computer Graphics (TVCG), 21(1), pp. 56-67, 2015

**Stroke-guided Image Synthesis for Skeletal Structure Editing**
Sheng-Jie Luo, Chin-Yu Lin, <u>I-Chao Shen</u>, and Bing-Yu Chen
Computer Graphics Forum (Proceedings of Pacific Graphics 2013)

**Perspective-Aware Warping for Seamless Stereoscopic Image Cloning**
Sheng-Jie Luo, <u>I-Chao Shen</u>, Bing-Yu Chen, Wen-Huang Cheng, and Yung-Yu Chuang
ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2012).

## Technical Reports and Preprints

**NeRF-In: Free-Form NeRF Inpainting with RGB-D Priors**
Hao-Kang Liu*, <u>I-Chao Shen</u>*, Bing-Yu Chen (*: joint first authors)
arxiv preprint (*[arxiv:2206.04901](arxiv:2206.04901)*)

**AutoPoly: Predicting a Polygonal Mesh Construction Sequence from a Silhouette Image**
<u>I-Chao Shen</u>, Yu Ju Chen, Oliver van Kaick, Takeo Igarashi
arxiv preprint (*[arxiv:2203.15233](arxiv:2203.15233)*)

**StylePart: Image-based Shape Part Manipulation**
<u>I-Chao Shen</u>, Li-Wen Su, Yu-Ting Wu, Bing-Yu Chen
arxiv preprint (*[arxiv:2111.10520](arxiv:2111.10520)*)

## Workshop Papers, Short Papers, Posters

**Guided Image Weathering using Image-to-Image Translation**
Li-Yu Chen, <u>I-Chao Shen</u>, and Bing-Yu Chen
SIGGRAPH ASIA 2021 Technical Communication

**Real-time Image-based Virtual Try-on with Measurement Garment**
Toby Chong, <u>I-Chao Shen</u>, Yunfei Qian, Nobuyuki Umetani, Takeo Igarashi
SIGGRAPH ASIA 2021 Emerging Technologies

**Transferring Deep Reinforcement Learning with Adversarial Objective and Augmentation**
<u>I-Chao Shen</u>, Shu-Hsuan Hsu, and Bing-Yu Chen
IJCAI-PRICAI 2020 Workshop on Knowledge-Based Reinforcement Learning (KBRL)

**Large-scale fabrication with interior zometool structure**
Ming-Shiuan Chen, <u>I-Chao Shen</u>, Chun-Kai Huang, and Bing-Yu Chen
ACM SIGGRAPH Poster Program 2018

**A Deep Learning Based Method For 3D Human Pose Estimation From 2D Fisheye Images**
Ching-Chun Chen, Chia-Min Wu, <u>I-Chao Shen</u>, and Bing-Yu Chen.
ACM IUI Poster Program 2018

**Retargeting 3D objects and scenes**
Chun-Kai Huang, Yi-Ling Chen, <u>I-Chao Shen</u>, and Bing-Yu Chen
ACM SIGGRAPH Poster Program 2015

**Painting Photolization**
Chien-Wen Jung, <u>I-Chao Shen</u>, Sheng-Jie Luo, Bing-Yu Chen, and Wen-Huang Cheng
ACM SIGGRAPH ASIA Poster Program 2013

**Texturing and Deforming Meshes with Casual Images**
<u>I-Chao Shen</u>, Yi-Hua Wang, Yu-Mei Chen, Bing-Yu Chen, and Wen-Huang Cheng
ACM SIGGRAPH ASIA Poster Program 2012

**User-Assisted Disparity Maps**
Hsin-Yi Chen, Yi-Shan Lin, <u>I-Chao Shen</u>, Sheng-Jie Luo, Wen-Huang Cheng and Bing-Yu Chen
Pacific Graphics 2012 short paper

**MusicSpace: You "Play" The Music**
Chun-Yu Tsai, Hung-Jung Lin, Tzu-Hao Kuo, Kai-Yin Cheng, <u>I-Chao Shen</u> Bing-Yu Chen, and Rung-Huei Liang
ACM SIGGRAPH Poster Program 2010

## Patent

**Smoothing images using machine learning**
Nathan A Carr, Zhaowen Wang, Duygu Ceylan, <u>I-Chao Shen</u>
United States Patent, No. 9799102, issued October 24, 2017.

## Awards and Grants

IPPR Best Ph.D. dissertation award, Honorable mention *2021*

AIP Challenge Researcher, Japan Science and Technology Agency (JST), Japan, *2021 - 2022*

JSPS Grant-in-Aid for Scientific Research for JPSP foreign fellow, Japan, *2021 - 2023*

JSPS Postdoctoral Fellowship for Foreign Researchers *2020 - 2022*

MediaTek Fellowship *2017 - 2020*

## Invited Talks

Computer Graphics around you everyday and how to become a Computer Graphics researcher, *July. 2022*
*Chikushigaoka High School, Fukuoka, Japan*

Computer Graphics around you everyday and how to become a Computer Graphics researcher, *July. 2022*
*Tokyo Metropolitan Tama High School of Science and Technology, Tokyo, Japan*
JSPS science dialogue program

Per Garment Capture and Synthesis for Real-time Virtual Try-on, *Sep. 2021*
*JST CREST 8th Research Area Meeting*

2D Visual Content Design Driven by Human-Guided Optimization, *Apr. 2021*
*The University of Tokyo, Tokyo, Japan*

## Media

**Per Garment Capture and Synthesis for Real-time Virtual Try-on** *2021, 2022*
- BS フジ - ガリレオ X　第 259 回「現F空間 × F想空間二つの世界を重ねる最新技術」(JP)
- JST News
- NIKKEI (JP)
- ZAIKEI (JP)
- TechCrunch Japan (JP)
- Tii 技術情報 (JP)
- Independent TV (UK)

## Professional Services

- **Reviewer:**
  - SIGGRAPH, SIGGRAPH ASIA
  - Eurographics
  - CHI
  - Pacific Graphics
  - CAD/Graphics
  - Transaction on Multimedia
  - VRST

– WACV

# References

**Takeo Igarashi**
Professor, Department of Computer Science and Graduate School of Information Science and Technology, The University of Tokyo, Japan
**Email:** takeo@acm.org

**Bing-Yu Chen**
Professor in Department of Computer Science and Engineering / Information Management, National Taiwan University
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**Yung-Yu Chuang**
Professor in Department of Computer Science and Engineering, National Taiwan University
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